



SEQUENCE LISTING

(1) GENERAL INFORMATION:

- T340X
- (i) APPLICANT: Harpold, Michael M.  
Ellis, Stephen B.  
Brust, Paul  
Akong, Michael  
Velicelebi, Gonul
- (ii) TITLE OF INVENTION: HUMAN NEURONAL NICOTINIC ACETYLCHOLINE  
RECEPTOR COMPOSITIONS AND METHODS
- (iii) NUMBER OF SEQUENCES: 12
- (iv) CORRESPONDENCE ADDRESS:  
(A) ADDRESSEE: Pretty Schroeder Brueggemann & Clark  
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(C) CITY: Los Angeles  
(D) STATE: CA  
(E) COUNTRY: USA  
(F) ZIP: 90071
- (v) COMPUTER READABLE FORM:  
(A) MEDIUM TYPE: Floppy disk  
(B) COMPUTER: IBM PC compatible  
(C) OPERATING SYSTEM: PC-DOS/MS-DOS  
(D) SOFTWARE: PatentIn Release #1.0, Version #1.25
- B<sup>1</sup>  
(vi) CURRENT APPLICATION DATA:  
(A) APPLICATION NUMBER: US 07/938,154  
(B) FILING DATE: 30-NOV-1992  
(C) CLASSIFICATION:
- (vii) PRIOR APPLICATION DATA:  
(A) APPLICATION NUMBER: WO PCT/US91/02311  
(B) FILING DATE: 03-APR-1991
- (vii) PRIOR APPLICATION DATA:  
(A) APPLICATION NUMBER: US 07/504,455  
(B) FILING DATE: 03-APR-1990
- (viii) ATTORNEY/AGENT INFORMATION:  
(A) NAME: Reiter, Stephen E.  
(B) REGISTRATION NUMBER: 31,192  
(C) REFERENCE/DOCKET NUMBER: P41 9380
- (ix) TELECOMMUNICATION INFORMATION:  
(A) TELEPHONE: 619-546-4737  
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(2) INFORMATION FOR SEQ ID NO:1:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 195 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: both  
(D) TOPOLOGY: both
- (ii) MOLECULE TYPE: cDNA
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(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..195
- (D) OTHER INFORMATION: /note= "Human neuronal NACHR  
alpha-2 cDNA shown as top sequence of Fig 7A."

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

GCTAAACAGG AGTGGAGCGA CTACAACTG CGCTGGAACC CCGCTGATTT TGGCAACATC 60  
ACATCTCTCA GGGTCCCTTC TGAGATGATC TGGATCCCCG ACATTGTTCT CTACAACAAA 120  
AATGGGGAGT TTGCAGTGAC CCACATGACC AAGGCCACC TCTTCTCCAC GGGCACTGTG 180  
CACTGGGTGC CCCCC 195

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 209 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: both
- (D) TOPOLOGY: both

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..209
- (D) OTHER INFORMATION: /note= "Rat neuronal NACHR alpha-2  
cDNA shown as the bottom nucleotide sequence in  
Figure 7A."

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

CCAATGTCTG GCTAAAGCAG GAATGGAATG ACTACAAGCT GCGCTGGGAC CCGGCTGAGT 60  
TTGGCAATGT CACCTCCCTG CGCGTCCCTT CAGAGATGAT CTGGATCCCA GACATTGTCC 120  
TCTACAACAA TGCAGATGGG GAGTTTGCGG TGACCCACAT GACCAAGGCT CACCTCTTCT 180  
TCACGGGCAC TGTGCACTGG GTGCCCCCA 209

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 202 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: both
- (D) TOPOLOGY: both

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..202
- (D) OTHER INFORMATION: /note= "Human neuronal NACHR  
alpha-2 cDNA shown as top sequence in Fig 7B."

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

CCCCCTTCGAC CAGCAGAACT GCAAGATGAA GTTTGGCTCC TGGACTTATG ACAAGGCCAA	60
GATCGACCTG GAGCAGATGG AGCAGACTGT GGACCTGAAG GACTACTGGG AGAGCGGCGA	120
GTGGGCCATC GTCAATGCCA CGGGCACCTA CAACAGCAAG AAGTACGACT GCTGCGCCGA	180
GATCTACCCC GACGTCACCT AG	202

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 250 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: both
- (D) TOPOLOGY: both

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..250
- (D) OTHER INFORMATION: /note= "Rat neuronal NACHR alpha-2  
cDNA shown as bottom sequence in Fig 7B."

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

CCCCCTTCGAC CAGCAGAACT GCAAGATGAA GTTTGGCTCC TGGACATATG ACAAGGCCAA	60
GATCGATCTG GAGCAGATGG AGAGGACAGT GGACCTGAAG GACTACTGGG AGAGTGGCGA	120
GTGGGCCATT ATCAATGCCA CCGGAACCTA TAACAGTAAG AAGTACGACT GCTGCGCGGA	180
GATCTACCCC GATGTCACCT ACTACTTTGT GATCCGGCGG CTGCCGCTGT TCTATACCAT	240
CAACCTCATC	250

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 278 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: both
- (D) TOPOLOGY: both

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..278
- (D) OTHER INFORMATION: /note= "Human neuronal NACHR  
alpha-3 cDNA shown as top sequence in Fig 8A."

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

CTGGCAGCAG AGGCTGAGCA CCGTCTATTT GAGCGGCTGT TTGAAGATTA CAATGAGATC	60
ATCCGGCCTG TAGCCAACGT GTCTGACCCA GTCATCATCC ATTTGAGGT GTCCATGTCT	120
CAGCTGGTGA AGGTGGATGA AGTAAACCAG ATCATGGAGA CCAACCTGTG GCTCAAGCAA	180
ATCTGGAATG ACTACAAGCT GAAGTGAAC CCCTCTGACT ATGGTGGGGC AGAGTTCATG	240
CGTGTCCTG CACAGAAGAT CTGGAAGCCA GACATTGT	278

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(2) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 300 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: both
- (D) TOPOLOGY: both

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..300
- (D) OTHER INFORMATION: /note= "Rat neuronal NACHR alpha-3 cDNA shown as bottom sequence of Fig 8A."

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

GATGCTGCTG	CCAGCGGCCA	GTGCTCAGA	AGCTGAGCAC	CGCCTGTTCC	AGTACCTGTT	60
CGAAGATTAC	AACGAGATCA	TCCGGCCAGT	GGCTAATGTG	TCCCATCCAG	TCATCATCCA	120
GTTTGAGGTG	TCCATGTCTC	AGCTGGTGAA	GGTGGATGAA	GTAAACCAGA	TCATGGAAAC	180
CAACCTGTGG	CTGAAGCAAA	TCTGGAATGA	CTACAAGCTG	AAATGGAAAC	CCTCTGACTA	240
CCAAGGGGTG	GAGTTCATGC	GTGTTCTGCT	AGAGAAGATC	TGGAAACCAG	ACATCGTACT	300

(2) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 305 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: both
- (D) TOPOLOGY: both

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..305
- (D) OTHER INFORMATION: /note= "Human neuronal NACHR alpha-3 cDNA shown as top sequence in Fig 8B."

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

TTCCAGGTGG	ACGACAAGAC	CAAAGCCTTA	CTCAAGTACA	CTGGGGACGT	GACTTGGATA	60
CCTCCGGCCA	TCTTTAAGAG	CTCCTGTAAA	ATCGACGTGA	CCTACTTCCC	GTTTGATTAC	120
CAAAACTGTA	CCATGAAGTT	CGGTTCTTGG	TCCTACGATA	AGGCGAAAAT	CGATCTGGTC	180
CTGATCGGCT	CTTCCATGAA	CCTCAAGGAC	TATTGGGAGA	GCGGCGAGTG	GGCCATCATC	240
AAAGCCCCAG	GCTACAAACA	CGACATCAAG	TACAACTGCT	GCGAGGAGAT	CTACCCCGAC	300
ATCAC						305

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(2) INFORMATION FOR SEQ ID NO:8:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 350 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: both  
(D) TOPOLOGY: both

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: misc feature  
(B) LOCATION: 1..350  
(D) OTHER INFORMATION: /note= "Rat neuronal NACHR alpha-3  
cDNA shown as bottom sequence in Fig 8B."

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

GTACAACAAC GCTGATGGGG ATTTCCAGGT GGATGACAAG ACCAAAGCTC TACTCAAGTA	60
CACAGGAGAA GTGACTTGGA TCCCGCCGGC CATCTTTAAG AGCTCATGCA AAATCGACGT	120
GACCTACTTC CCATTGCGACT ACCAAAACTG CACCATGAAG TTCGGCTCCT GGTCTACGA	180
CAAGGCAAAG ATCGACCTGG TCCTCATCGG CTCCTCCATG AACCTCAAGG ACTACTGGGA	240
GAGTGGCGAG TGGGCTATCA TTAAAGCCCC GGGCTACAAA CATGAAATCA AGTACAACTG	300
CTGTGAGGAG ATCTACCAAG ACATCACGTA CTCGCTGTAC ATCCGTCGCC	350

(2) INFORMATION FOR SEQ ID NO:9:

- (i) SEQUENCE CHARACTERISTICS:  
(A) LENGTH: 1521 base pairs  
(B) TYPE: nucleic acid  
(C) STRANDEDNESS: both  
(D) TOPOLOGY: both

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: misc feature  
(B) LOCATION: 1..1521  
(D) OTHER INFORMATION: /note= "Human neuronal NACHR beta-2  
cDNA shown as top sequence in Fig 9."

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

ATGCCCGCTG GCATGGCCCG GCGCTGCGGC CCCGTGGCGC TGCTCCTTGG CTCGGCCTC	60
CTCCGGCTGT GCTCAGGGGT GTGGGGTACG GATACAGAGG AGCGGCTGGT GGAGCATCTC	120
CTGGATCCTT CCCGCTACAA CAAGCTTATC CGCCCAGCCA CCAATGGCTC TGAGCTGGTG	180
ACAGTACAGC TTATGGTGTC ACTGGCCCAG CTCATCAGTG TGCATGAGCG GGAGCAGATC	240
ATGACCACCA ATGTCTGGCT GACCCAGGAG TGGGAAGATT ATCGCCTCAC CTGGAAGCCT	300
GAAGAGTTTG ACAACATGAA GAAAGTTCGG CTCCCTTCCA AACACATCTG GCTCCAGAT	360
GTGGTCCTGT ACAACAATGC TGACGGCATG TACGAGGTGT CCTTCTATTC CAATGCCGTG	420
GTCTCCTATG ATGGCAGCAT CTTCTGGCTG CCGCCTGCCA TCTACAAGAG CGCATGCAAG	480

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ATTGAAGTAA AGCACTTCCC ATTTGACCAG CAGAACTGCA CCATGAAGTT CCGTTCGTGG 540  
 ACCTACGACC GCACAGAGAT CGACTTGGTG CTGAAGAGTG AGGTGGCCAG CCTGGACGAC 600  
 TTCACACCTA GTGGTGAGTG GGACATCGTG GCGCTGCCGG GCCGCGCAA CGAGAACCCC 660  
 GACGACTCTA CGTACGTGGA CATCACGTAT GACTTCATCA TTCGCCGCAA GCCGCTCTTC 720  
 TACACCATCA ACCTCATCAT CCCCTGTGTG CTCATCACCT CGCTAGCCAT CCTTGTCTTC 780  
 TACCTGCCAT CCGACTGTGG CGAGAAGATG ACGTTGTGCA TCTCAGTGCT GCTGGCGCTC 840  
 ACGGTCTTCC TGCTGCTCAT CTCCAAGATC GTGCCTCCCA CCTCCCTCGA CGTGCCGCTC 900  
 GTCGGCAAGT ACCTCATGTT CACCATGGTG CTTGTCACCT TCTCCATCGT CACCAGCGTG 960  
 TGCGTGCTCA ACGTGCACCA CCGCTCGCCC ACCACGCACA CCATGGCGCC CTGGGTGAAG 1020  
 GTCGTCTTCC TGGAGAAGCT GCCCGCGCTG CTCTTCATGC AGCAGCCACG CCATCATTCG 1080  
 GCCCGTCAGC GCCTGCGCCT GCGGCGACGC CAGCGTGAGC GCGAGGGCGC TGGAGCCCTC 1140  
 TTCTTCCGCG AAGCCCCAGG GGCCGACTCC TGCACGTGCT TCGTCAACCG CGCGTCGGTG 1200  
 CAGGGGTTGG CCGGGGCCTT CGGGGCTGAG CCTGCACCAG TGGCGGGCCC CGGGCGCTCA 1260  
 GGGGAGCCGT GTGGCTGTGG CCTCCGGGAG GCGGTGGACG GCGTGCGCTT CATCGCAGAC 1320  
 CACATGCGGA GCGAGGACGA TGACCAGAGC GTGAGTGAGG ACTGGAAGTA CGTCGCCATG 1380  
 GTGATCGACC GCCTCTTCCT CTGGATCTTT GTCTTTGTCT GTGTCTTTGG CACCATCGGC 1440  
 ATGTTCTTGC AGCCTCTCTT CCAGAACTAC ACCACCACCA CCTTCCTCCA CTCAGACCAC 1500  
 TCAGCCCCCA GCTCCAAGTG A 1521

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 1512 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: both
- (D) TOPOLOGY: both

(ii) MOLECULE TYPE: cDNA

(ix) FEATURE:

- (A) NAME/KEY: misc feature
- (B) LOCATION: 1..1512
- (D) OTHER INFORMATION: /note= "Rat neuronal NACHR beta-2 cDNA shown as bottom nucleotide sequence in Figure 9."

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

ATGCTGGCTT GCATGGCCGG GCACTCCAAC TCAATGGCGC TGTTACGCTT CAGCCTTCTT 60  
 TGGCTGTGCT CAGGGGTTTT GGGAAGTAC ACAGAGGAGC GGCTAGTGGA GCATCTCTTA 120  
 GATCCCTCCC GCTATAACAA GCTGATTCGT CCAGCTACTA ACGGCTCTGA GCTGGTGACT 180  
 GTACAGCTCA TGGTATCATT GGCTCAGCTC ATTAGTGTGC ACAGCGGGA GCAGATCATG 240  
 ACCACCAATG TCTGGCTGAC CCAGGAGTGG GAAGATTACC GCCTCACATG GAAGCCTGAG 300

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Cont

GACTTCGACA	ATATGAAGAA	AGTCCGGCTC	CCTTCCAAAC	ACATCTGGCT	CCCAGATGTG	360
GTTCTATACA	ACAATGCTGA	CGGCATGTAC	GAAGTCTCCT	TCTATTCCAA	TGCTGTGGTC	420
TCCTATGATG	GCAGCATCTT	TTGGCTACCA	CCTGCCATCT	ACAAGAGTGC	ATGCAAGATT	480
GAGGTGAAGC	ACTTCCCATT	TGACCAGCAG	AATTGCACCA	TGAAGTTTCG	CTCATGGACC	540
TACGACCGTA	CTGAGATTGA	CCTGGTGCTC	AAAAGTGATG	TGGCCAGTCT	GGATGACTTC	600
ACACCCAGCG	GGGAGTGGGA	CATCATCGCA	CTGCCAGGCC	GACGCAACGA	GAACCCAGAC	660
GACTCCACCT	ATGTGGACAT	CACCTATGAC	TTCATCATTC	GTCGCAAACC	ACTCTTCTAC	720
ACTATCAACC	TCATCATCCC	CTGCGTACTC	ATCACCTCGC	TGGCCATCCT	GGTCTTCTAC	780
CTGCCCTCAG	ACTGTGGTGA	AAAGATGACA	CTTTGTATTT	CTGTGCTGCT	AGCACTCACG	840
GTGTTCTGTC	TGCTCATCTC	CAAGATTGTG	CCTCCCACCT	CCCTCGATGT	ACCGCTGGTG	900
GGCAAGTACC	TCATGTTTAC	CATGGTGCTA	GTCACCTTCT	CCATCGTCAC	CAGCGTGTGT	960
GTGCTCAATG	TGCACCACCG	CTCGCCTACC	ACGCACACCA	TGGCCCCCTG	GGTCAAGGTG	1020
GTCTTCCTGG	AGAAGCTGCC	CACCCTGCTC	TTCCTGCAGC	AGCCACGCCA	CCGCTGTGCA	1080
CGTCAGCGTC	TGCGCTTGAG	GAGGCGCCAG	CGAGAGCGTG	AGGGCGAGGC	GGTTTTCTTC	1140
CGTGAAGGTC	CTGCGGCTGA	CCCATGTACC	TGCTTTGTCA	ACCCTGCATC	AGTGCAGGGC	1200
TTGGCTGGGG	CTTCCGAGC	TGAGCCCACT	GCAGCCGGCC	CGGGGCGCTC	TGTGGGGCCA	1260
TGCAGCTGTG	GCCTCCGGGA	AGCAGTGGAT	GGCGTACGCT	TCATTGCGGA	CCACATGCGA	1320
AGTGAGGATG	ATGACCAGAG	TGTGAGGGAG	GACTGGAAAT	ACGTTGCCAT	GGTGATCGAC	1380
CGCCTGTTCC	TGTGGATCTT	TGTCTTTGTC	TGTGTCTTTG	GGACCGTCGG	CATGTTCTCTG	1440
CAGCCTCTCT	TCCAGAACTA	CACTGCCACT	ACCTTCCTCC	ACCCTGACCA	CTCAGCTCCC	1500
AGCTCCAAGT	GA					1512

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 21 base pairs
- (B) TYPE: nucleic acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

AGCTTTTCGAT ATCAGAATTC G

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(2) INFORMATION FOR SEQ ID NO:12:

- (i) SEQUENCE CHARACTERISTICS:  
 (A) LENGTH: 21 base pairs  
 (B) TYPE: nucleic acid  
 (C) STRANDEDNESS: single  
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: DNA (genomic)

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

AGCTCGAATT CTGATATCGA A

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